Trumpcard: Jack of Diamonds

Installation Guide

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Preface

This guide provides installation, configuration and operating instructions for the Ositech Trumpcard Jack of Diamonds PC Card.

The Trumpcard Jack of Diamonds is a Type II PC Card that provides both Ethernet LAN and Data/Fax Modem capabilities in a single PC Card.

‘Trumpcard’ and ‘Jack of Diamonds’ will be used interchangeably throughout this manual. Both refer to the Ositech Ethernet LAN + Data/Fax Modem PC Card.

‘PCMCIA Card’ and ‘PC Card’ are used interchangeably throughout this manual. As above, both terms refer to the Ositech Ethernet LAN + Data/Fax Modem PC Card.

FCC Notice

This equipment has been tested and found to comply with Class B digital device limits, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, which may cause harmful interference to radio communications if not installed and used in accordance with the instructions . However, there is no guarantee (expressed or implied), that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception (which can be determined by turning the equipment off and on), the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Ositech Communications Inc. may void the user’s authority to operate this equipment.

Operating Conditions

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Canadian Notice

This equipment does not exceed the Class B limits for radiated emissions as described in the Radio Interference Regulations of the Canadian Department of Communications.

Avis Canadien

Le présent appareil numérique n'émet pas de bruits radioélecriques dépassant les limites applicables aux appareils numériques de la Classe B prescrites dans le Règlement sur le Brouillage Radioélectrique édicté par le Ministère des Communications du Canada.

U.S. Regulations Governing the Use of Modems

This equipment complies with Part 68 of the FCC rules. Located on the modem is a label that contains, among other information, the FCC Registration Number and Ringer Equivalent Number (REN) for this equipment. Upon request, you must provide this information to your telephone company.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all, areas the sum of the RENs of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your telephone line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area. The REN for this device is 0.7B.

If your telephone equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But, if advance notice is not practical, you will be notified as soon as possible. You will also be informed of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, contact your local telephone company for information on obtaining service or repairs. The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs. Canadian Regulations Governing the Use of Modems

Canadian Regulations Governing the Use of Modems

Note: *The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.*

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Section One

Introduction

Congratulations on your purchase of an Ositech Trumpcard Jack of Diamonds! We believe you will find it a superior quality product that will meet or exceed your communication needs.

The Trumpcard Jack of Diamonds provides the functionality of two adapters: an Ethernet LAN Network Interface Card, and a 33600bps or 28800bps Data/14400bps Fax Hayes and Microcom compatible Modem in a single PC Card. The Jack of Diamonds plugs into your computer's Type II PCMCIA slot and connects to both the Ethernet LAN and telephone network. The Jack of Diamonds is a Type II PC Card conforming to PCMCIA release 2.x.

The Jack of Diamonds is ideal for notebook, laptop, and desktop computer users who need a flexible Network and Modem connectivity solution while using only a single PCMCIA slot.

Key Features

- Combined Ethernet LAN Network Interface Card and Data/Fax Modem in a single Type II PC Card
- Separate Direct Connection to Ethernet and Telephone Networks
- Simultaneous Network and Modem operation
- PCMCIA aware smart drivers eliminate the need for Card and Socket Services, which decreases memory overhead
- Compatible with all industry standard Card and Socket Services that conform to PCMCIA Release 2.x
- Low power design requires no external power adapters
- Comprehensive service and support via Toll Free Hot Line, 24 Hour BBS, Compuserve, and Internet e-mail, FTP, Gopher, and World Wide Web services
- 5 Year Warranty

Network

- Direct 10BaseT cable connection without using an external module
- High performance 16 bit operation
- Optional external Media Access Module (MAM) supports 10Base2 (Thin Coax) as well as 10BaseT (Twisted Pair) Ethernet
- Compatible with most Network Operating Systems and Desktop Environments
- The most comprehensive array of Network drivers available
- Intelligent Media Detection

Data/Fax Modem

- Direct Cable Connection to the telephone network; no external module required
- High speed data communications at speeds of 33.6 kbps and 28.8 kbps
- High speed fax communications at speeds up to 14.4 kbps
- Synchronous communications using Hayes AutoSync
- Data Error Correction and Compression using industry standard protocols
- Reliable cellular connections using MNP10 / MNP10-EC protocol
- 16 byte FIFO buffer for high throughput under Windows
- Includes Data Communications and Fax software for Windows
- Field upgradeable software using on-board Flash memory
- Cellular Ready
- Direct connection to popular Cellular phones; no external modules required

Data Mode

The Trumpcard Modem fully supports the following industry and ITU-T (formerly CCITT) standards.

- *V.FC, ITU-T: *V.34, V.32bis, V.32, V.22*bis,* V.22, V.23, V.21, and Bell 103/212A operation
- Data rate adaptation to 115200, 57600, 38400, 28800, 26400, 24000, 21600, 19200, 14400, 12000, 9600, 7200, 4800, 2400, 1200, and 300 bps
- Enhanced “AT” compatible command set
- ITU-T V.42 LAPM error correction protocol
- MNP 2, 3, and 4 error correction protocol
- MNP 10 Error correction protocol for cellular communications
- ITU-T V.42*bis* data compression
- MNP Class 5 data compression
- Adaptive packet assembly
- Automatic feature negotiation
- V.42 and MNP negotiation
- Automatic speed adjust
- Full or half duplex transmission
- Automatic dial, re-dial, and answer
- Pulse or tone dialling
- Call progress detection
- Line quality receive level monitoring
- Diagnostics
- Compatible with off-the-shelf communications/facsimile packages
- Synchronous communications using Hayes AutoSync

** Only applicable to Trumpcard 28800 version*

Facsimile Mode

The Trumpcard facsimile supports Class 1 and Class 2 *AT* fax commands for facsimile communications. To use the facsimile, you must have a facsimile communications software package.

- Group 3 facsimile send/receive speeds of 14400, 9600, 7200, 4800, and 2400 bps
- ITU-T V.17, V.29, and V.27ter
- Facsimile Class 1 command set compatible with EIA/TIA 578
- Facsimile Class 2 command set compatible with proposed EIA/TIA 592

Cellular Mode

The Trumpcard Modem has an optional cellular kit that allows the Modem to connect to a variety of cellular phones. For an up-to-date list of the cellular phones currently supported please contact Ositech.

Cellular phones supported:

• AT&T	3610, 3710, 3730, 3760
• DIAMOND TEL	DT-20x, DT-22x
• MITSUBISHI	3500, 4000, 4500, 5000, D100
• MOTOROLA	Micro Digital Lite, MicroTAC Ultralite, MicroTAC Lite, MicroTAC Alpha
• NEC	P110, P120, P180, P200, P201, P300, P301
• OKI	900, 910, 1145, 1150

Industry Standards

V.21

V.21 refers to a standard set by ITU-T for 300 bps Modem communications. North American manufactured modems usually follow the Bell 103 standard.

V.22

V.22 refers to the standard set by ITU-T for 1200 bps Modem communications. The V.22 standard is compatible with the Bell 212A standard used in North America.

V.22bis

V.22*bis* refers to the standards set by ITU-T for 2400 bps Modem communications.

V.23

V.23 refers to the standards set by ITU-T for 1200 bps Modem communications with a 75 bps back channel. V.23 is primarily used in the U.K.

V.32

V.32 refers to the standard set by ITU-T for 9600 and 4800 bps Modem communications.

V.32bis

V.32*bis* refers to the standard set by ITU-T for 14,400, 12,000, 9600, 7200, and 4800 bps Modem communications.

V.34

V.34 refers to the standard set by ITU-T for 28,800 to 2400 bps Modem communications.

V.42

V.42 refers to the standard set by ITU-T for error control protocol. The V.42 standard also supports the MNP error correction protocol standard.

V.42bis

V.42*bis* refers to the standard set by ITU-T for data compression. Data compression can only be used in conjunction with error correction.

MNP 2, 3, and 4

MNP 2, 3, and 4 refers to an alternate standard for error correction protocol.

MNP 10

MNP 10 refers to a error correction protocol often used in harsh environments (cellular use)

MNP 5

MNP 5 refers to an alternate standard for data compression.

V.17

V.17 refers to the standards set by ITU-T for 14400, 12000, 9600 and 7200 bps facsimile communications

V.29

V.29 refers to the standards set by ITU-T for 9600 and 7200 bps facsimile communications.

V.27ter

V.27ter refers to the standards set by ITU-T for 4800 and 2400 bps facsimile communications.

V.FC

V.FC refers to Rockwell's proprietary Modem communications standard for 28800, 26400, 24000, 21600, 19200, 16800, and 14400 bps communications.

Section Two

Hardware Installation

Unpack the Trumpcard Jack of Diamonds hardware, and follow the steps below to install it on your computer. Instructions -- electronic and printed -- are included for 10BaseT twisted-pair and 10Base2 thin coax Ethernet Networks as well as Modem operations.

Unpacking and Inspection

Carefully inspect the contents of the box (listed below), to verify that everything you should have is included and that nothing has been damaged during transportation. Retain the packing material in case the unit needs to be returned for service.

Package Contents

Use the following list to check the contents of the package:

- Trumpcard Jack of Diamonds PC Card
- Manuals (*Installation Guide, Modem User's Guide, Ethernet User's Guide*)
- Jack of Diamonds 3.5 inch diskettes
- Modem cable
- Ethernet 10BaseT cable or Media Access Module for 10BaseT and 10Base2 operation
- Fax software

Preparing for Hardware Installation

To install the Jack of Diamonds, the following items (as well as the cables shipped with the Trumpcard) are required:

- A computer equipped with a PCMCIA Release 2.x Type II PC Card slot.
- A land based or cellular connection for the Modem.
- For 10BaseT (twisted pair) Networks, a twisted pair Ethernet Network cable terminated with an RJ-45 connector when using the Jack of Diamonds Media Access Module for 10BaseT connections.
- For 10Base2 (thin coax) Networks, a coaxial T-connector and a terminator if at the end of the coaxial segment.

Installing the Jack of Diamonds

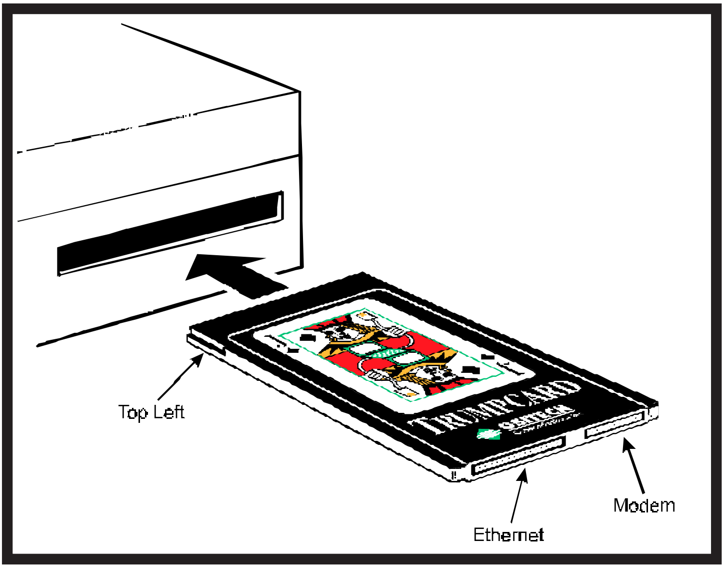
The Jack of Diamonds can be inserted into a computer whether the power is ON or OFF.

Follow these steps:

- Orient the Jack of Diamonds so that the 68-pin connector is next to the PCMCIA slot of the computer.
- Insert the Jack of Diamonds into the slot until it is firmly seated.

Note: *These are general installation instructions that apply to most computers. Please refer to the manual accompanying your computer for any additional instructions on installing PC Card adapters.*

Note: *The PC Card is keyed to go in one way only. If you feel resistance before the PC Card is fully inserted, remove the PC Card, turn it over, and re-insert it.*



Installing the Jack of Diamonds

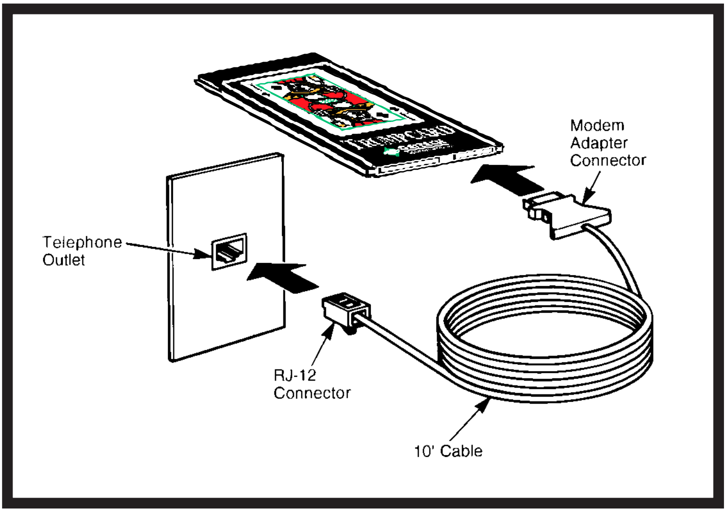
Connecting to the Telephone Network with a Direct Cable Connection

The Jack of Diamonds Modem may be directly connected to either a standard land based telephone line or to a cellular telephone using the Cellular Option Kit. For cellular installation, refer to the installation instructions accompanying the Cellular Option Kit.

To directly connect the Jack of Diamonds to a standard land based telephone line follow these steps:

- Locate the modular cable that has a male RJ-12 connector at one end and a PCMCIA Modem Adapter connector at the other.
- The Modem connection is identified on the back of the Jack of Diamonds; insert the PCMCIA Modem Adapter connector into the one marked Modem.
- Connect the male RJ-12 connector into the telephone line outlet. If you wish to have both a telephone and the Trumpcard Modem connected to a single telephone line outlet, then a telephone Y-connector is required.

Note: *The PCMCIA Modem Adapter connector is keyed to go in one way only and cannot be inserted into the Ethernet connector accidentally. If you feel resistance before the connector is fully inserted, remove the connector, turn it over, and re-insert it.*



Direct Cable Connection to Telephone Network

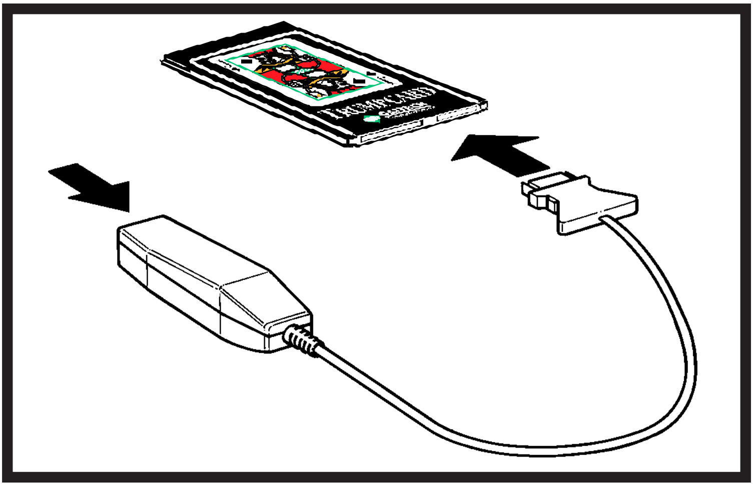
Connecting to a Telephone Network through the Line Interface Module

The Jack of Diamonds Modem may be connected to a variety of telephone networks using the the Line Interface Module, and the appropriate Adapter Cable. Contact Ositech for the latest list of countries supported.

To connect the Trumpcard to your telephone service using the Line Interface Module, and follow these steps:

- Locate the Line Interface Module that has a PCMCIA Modem Adapter at one end.
- The Modem connection is identified on the back of the Jack of Diamonds; insert the PCMCIA Modem Adapter connector into the one marked Modem.
- Connect the Trumpcard Modem to your telephone service connection via the Line Interface Module, using the interconnecting cable and adapter approved for use in your country.

Note: *The PCMCIA Modem Adapter connector is keyed to go in one way only and cannot be inserted into the Audio connector accidentally. If you feel resistance before the connector is fully inserted, remove the connector, turn it over, and re-insert it.*



Line Interface Module Connection to Telephone Network

Connecting to 10BaseT Twisted Pair Networks

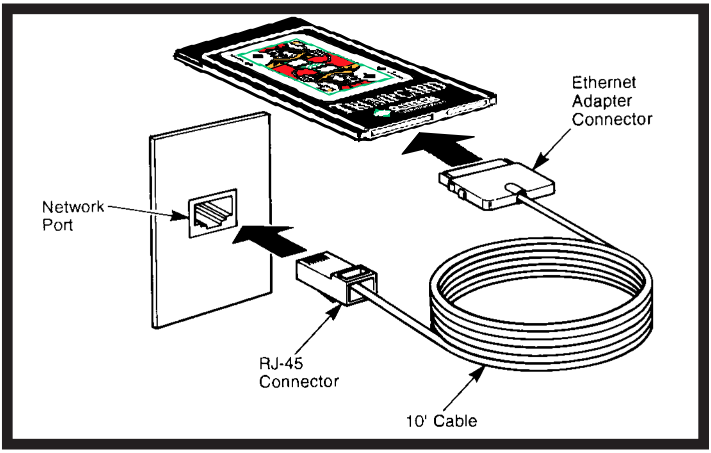
The Jack of Diamonds can be connected to a 10BaseT Ethernet Network in one of two ways: directly connected through a cable attached to the Jack of Diamonds if you have the 10BaseT version, or via the Media Access Module (MAM) if you chose that option.

Connecting directly to the Jack of Diamonds, the cable supplied has a male RJ-45 connector at one end that can be attached to an input port of a 10BaseT compatible concentrator. No external Media Access Module is required; all the necessary interface is provided within the Jack of Diamonds.

To Direct Connect the Jack of Diamonds to a 10BaseT Ethernet Network connection follow these steps:

- Locate the twisted pair cable that has a male RJ-45 connector at one end and a PCMCIA Ethernet Adapter connector at the other.
- On the back of the Jack of Diamonds the Ethernet and Modem connections are identified, insert the PCMCIA Ethernet Adapter connector into the one marked Ethernet.
- Connect the male RJ-45 connector into an input port of a 10BaseT compatible concentrator.

Note: *The PCMCIA Ethernet Adapter connector is keyed to go in one way only and cannot be inserted into the Modem connector accidentally. If you feel resistance before the connector is fully inserted, remove the connector, turn it over, and re-insert it.*



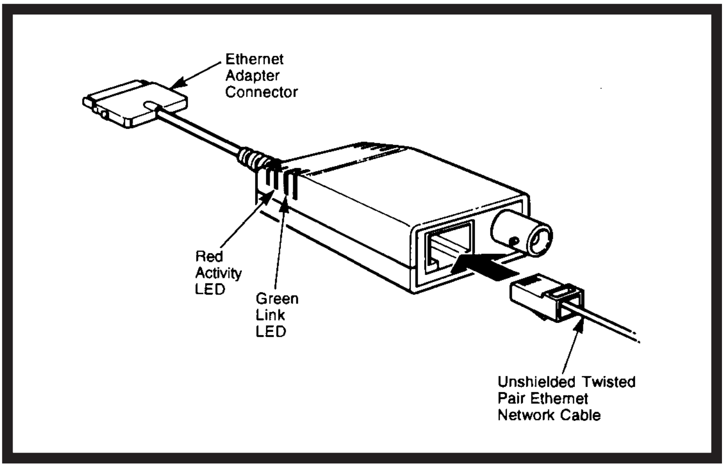
Direct 10BaseT Ethernet Connection

The second method of connecting to a 10BaseT Ethernet Network is via the Media Access Module. A female RJ-45 connector is provided on the Media Access Module for 10BaseT Ethernet Network connections.

To connect the Jack of Diamonds to a 10BaseT Ethernet Network connection using the Media Access Module follow these steps:

- On the back of the Jack of Diamonds card, the Ethernet and Modem connections are identified, insert the PCMCIA Ethernet Adapter connector on the Media Access Module into the one marked Ethernet.
- Plug the male RJ-45 connector from the Network access cable into the female RJ-45 connector on the Media Access Module.

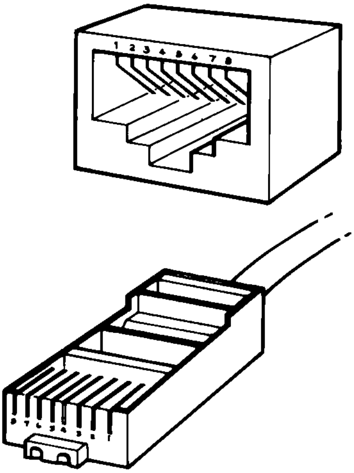
Note: *The PCMCIA Ethernet Adapter connector is keyed to go in one way only and cannot be inserted into the Modem connector accidentally. If you feel resistance before the connector is fully inserted, remove the connector, turn it over, and re-insert it.*


Ethernet Adapter Connector
Red Activity LED
Green Link LED
Unshielded Twisted Pair Ethernet Network Cable

Media Access Module 10BaseT Network Connection

Interface Cabling and Pinout

The Direct Connect 10BaseT cable provided with the Jack of Diamonds is wired for Direct Connection to an Ethernet 10BaseT Concentrator. If the premises wiring scheme you are using does not match this wiring scheme then contact Ositech for assistance on how to make a 10BaseT Ethernet connection in your environment.



Lead	Signal
1	TX+
2	TX-
3	RX+
4	nc
5	nc
6	RX-
7	nc
8	nc

10BaseT Pinout

Concentrators

When used with 10BaseT Twisted-pair cable, the Jack of Diamonds must always connect to a concentrator, which results in a star-wired Network with the concentrator at the centre of the star. The Jack of Diamonds is compatible with 10BaseT concentrators from a variety of vendors.

Twisted Pair Network Characteristics

Standard	IEEE 802.3 10BaseT
Data Rate	10 Mbits per second
Maximum length of connecting nodes per network	100m (328')
Maximum number of computer nodes per network	1024
Twisted-pair cable	Category 3 (10 mbps) or Category 4 (16 mbps) or Category 5 (100 mbps) that meet the requirements of EIA/TIA-568 and EIA/TIA TSB-36.

Connecting to 10Base2 Thin Ethernet Networks

The **only** method of connecting the Jack of Diamonds to a 10Base2 Network is by using the Media Access Module (MAM).

The following items are required to interconnect the Jack of Diamonds to a 10Base2 thin coax Ethernet Network:

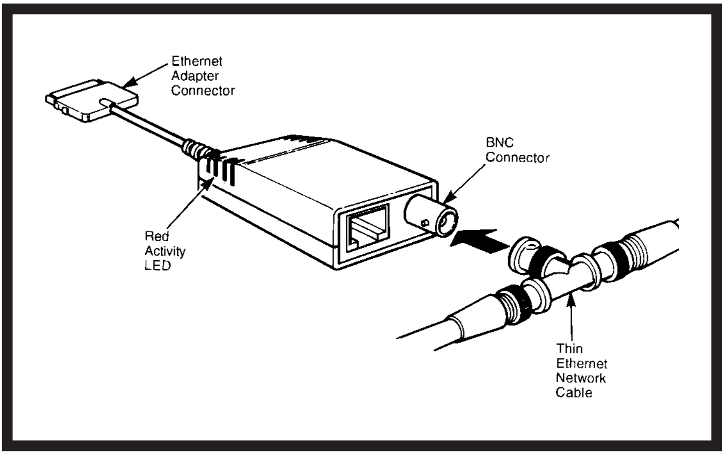
- A BNC coaxial T-connector.
- Coaxial cable(s) and a 50 ohm cable terminator if required.

To connect the Jack of Diamonds to a 10Base2 Ethernet Network connection using the Media Access Module follow these steps:

- On the back of the Jack of Diamonds the Ethernet and Modem connections are identified, insert the PCMCIA Ethernet Adapter connector on the Media Access Module into the one marked Ethernet.
- Attach the T-connector to the BNC connector on the Media Access Module, align the notches in the T-connector with the posts on the BNC connector, push the connector in, and twist about one-quarter turn.
- Connect the coaxial cable(s) to the open ends of the T-connector to form a single Network segment. If at the end of the Network segment, attach a 50 ohm cable terminator to the unused T-connector post.

Note: *The PCMCIA Ethernet Adapter connector is keyed to go in one way only and cannot be inserted into the Modem connector accidentally. If you feel resistance before the connector is fully inserted, remove the connector, turn it over, and re-insert it.*

The Media Access Module has provisions for an external power source; however, no external DC power adapter is provided, as the Media Access Module can be powered through the PCMCIA card in almost all notebooks. Under rare circumstances -- when using the MAM in a PDA or a notebook with very limited power -- would a DC power adapter be needed. Under such circumstances, use a 6V DC adapter with a minimum current rating of 200 mA, and negative tip polarity. Using an adapter with positive tip polarity would damage the MAM. If in doubt, please call Ositech Technical Support for further information.



Media Access Module 10Base2 Network Connection

Thin Coax Ethernet Segment

A thin coax Ethernet cable segment is the length of cable between terminations. The Trumpcard PC Card functions with 185 meter (607 foot with IEEE 10Base2) or 300 meter (984 foot, using the extended length option) cable segments. The two above mentioned types of thin coax Ethernet cabling (IEEE 10Base2 and extended length option) are common. Pick one type of cabling and **consistently** obey the protocol for that type of cabling throughout your Network. If you mix the rules (for example, using two repeater links permitted by 10Base2 with the 100 nodes per segment permitted under the extended length option), your Network may have an excessive number of errors or may not operate at all.

If your Network uses standard 185-meter cable segments, all thin Ethernet cable segments in the Network can be up to 185 meters long. Five standard length cable segments may be connected in line using commercially available repeaters. The total Network span with five standard length segments is 925 meters (3,035 feet). No more than four repeaters can be on the signal path from one node to any other node. The standard 185 meter segment length is recommended because it allows you to use common thin coax Ethernet components which conform to the IEEE standard.

If your Network is using extended length 300-meter cable segments, all thin coax Ethernet cable segments in the Network can be a maximum of 300 meters long. Three 300-meter cable segments may be connected in line using repeaters. The total Network span with three extended length segments is 900 meters (2,953 feet). No more than two repeaters can be in the signal path from one node to any other node.

If you are using extended length segments, all repeaters and transceivers must be designed for 300-meter operation. In addition, all Network adapters must be configured to operate with the extended segment length.

Note: *You **cannot** use Ethernet adapters to extend 185-meter segments to 300-meter segments unless all LAN adapters and repeaters in the network are capable of operation on the extended segment length.*

Thin Ethernet Network Characteristics

Characteristics	**Standard Length Segment**	**Extended Length Segment**
Standard	IEEE 802.3 10Base2	IEEE 802.3 10Base2
Data Rate	10 Mbits per second	10 Mbits per second
Segment Length	185m (607')	300m (984')
Maximum number of segments between nodes	3 coax, plus 2 repeater links	3 coax; no repeater links
Maximum number of repeaters between nodes	4 when using 2 repeater links	2
Network Span	925m (3035')	900m (2953')
Maximum number of nodes per segment	30	100
Maximum number of nodes per network	1024	1024
Minimum space between nodes	0.5m (1.64'/20")	0.5m (1.64'/20")
Cable type	RG58 A/U or C/U, 50 ohm	RG58 A/U or C/U, 50 ohm

Media Access Module LED Indicators

The Media Access Module has two LED indicators used to provide a visual indication of the state of the network link. These LED indicators will only be operational once the Trumpcard network driver has been loaded or during Diagnostic testing.

Activity LED (RED)

The Activity LED will flash whenever any network activity is detected by the Media Access Module. The Activity LED can be used as a simple method of determining if the Media Access Module is exchanging data with the network.

Link LED (GREEN)

The Link LED lights whenever a twisted pair connection between the Media Access Module and the 10BaseT concentrator has been made. The Link LED is not used for 10Base2 thin coax connections. If when attempting to connect to a 10baseT network, the Link LED is not lit, this would indicate that a connection between the Media Access Module and the 10BaseT concentrator has not been detected. Verify the wiring and make sure that a Trumpcard network driver has been loaded.

Section Three

Software Installation

Prior to installing the Jack of Diamonds software the following sections should be reviewed.

Preparing for Software Installation

To configure the Jack of Diamonds for both Network and Modem operation, you require the accompanying diskettes and the following items:

- PCMCIA Card and Socket Services Version 2.x or higher, installed for DOS, or Windows 3.1/3.11 operating systems. This is optional since the Jack of Diamonds software can operate without Card and Socket Services.
- The Network operating system workstation diskettes or the software pre-installed on the hard drive.
- Knowledge of which I/O Addresses, COM Ports and IRQ's are available for use. If unsure of these values, the default values in most cases will operate properly.
- Communications and/or Facsimile software to test that the Modem functions.
- Up to 2 Megabytes of hard disk space depending on the operating systems and the files required.

Quick Setup

Network and Modem Operation

In order to operate the Network and Modem simultaneously, a Network driver for the type of Network operating system being used must be configured and installed. For DOS, Windows, and OS/2 an installation program has been provided that will assist in the configuration and network driver installation for the Jack of Diamonds.

In order to run the installation program follow these steps:

DOS:

1. Insert the Installation and Diagnostics Diskette
2. From a DOS prompt execute the INSTALL program from the diskette (i.e. A:\INSTALL)
3. Follow the instructions

Windows \ Windows NT 3.5:

1. Insert the Installation and Diagnostics Diskette
2. From the Windows Program Manager select FILE then RUN, and enter A:\SETUP to install from diskette drive A otherwise replace A with the appropriate drive letter.
3. Follow the instructions

OS/2:

1. Insert the OS/2 Installation Diskette
2. From an OS/2 command prompt enter A:\INSTALL to install from diskette drive A otherwise replace A with the appropriate drive letter.
3. Follow the instructions

For the SCO UNIX and UnixWare operating systems a README.TXT file has been provided to detail all the steps required to configure a driver for both Modem and network operation. The README.TXT file is on the DOS formatted Network Drivers and Modem Setup diskette under the \UNIX\SCO or \UNIX\UW directories.

Modem Only Operation

The Jack of Diamonds has been configured such that it will be recognized and enabled as a Modem only when used with a computer running Card and Socket Services and a Generic Enabler. With both Socket Services and an Enabler present, the Modem will be fully functional and its configuration will be determined by the settings set for the Enabler. In this mode of operation the Network portion of the Jack of Diamonds will be in a power down state thus minimizing the power requirements to operate the Trumpcard.

For operating systems that do not support PCMCIA equipped computers the Jack of Diamonds network driver acts as an enabler and can be configured for Modem only operation.

Socket Services and Card Services

Your computer having Personal Computer Memory Card International Association (PCMCIA) support allows you to insert credit card-sized devices called PC Cards. The PCMCIA standard defines both a hardware and software standard. The software standard identifies two specifications which are called Socket Services and Card Services.

Socket Services provides lowest level support by providing a common interface to varying types of PCMCIA adapter hardware. Card Services provides support for PCMCIA aware device drivers (known as clients) and is responsible for coordinating access to the PC Cards and allocating system resources among client drivers.

Ositech's Trumpcard software is PCMCIA aware and will work with all industry standard Socket Services and Card Services available that conform to the PCMCIA 2.x standard. The Trumpcard software will operate as a client driver when used with Card Services, and can coexist with other client drivers (i.e. Super Clients, Flash, ATA, ...). When operating with Card and Socket Services the Trumpcard software will support hot removal and insertion (Hot-Swapping) of the PC Card.

If Card Services is not detected by the Trumpcard software but Socket Services is detected then the software will operate with Socket Services only. Support for Socket Services is provided to allow for differing types of PCMCIA hardware to be used by the Trumpcard software, but the full range of features will not be supported (mainly hot removal/insertion).

It is also possible to use the Trumpcard software without Card Services or Socket Services; but, as with only using Socket Services, the full range of features will not be supported. If your computer did not come equipped with Card and Socket Services, contact your computer manufacturer or dealer for more details.

Installing the Jack of Diamonds Software

Automated installation and configuration software has been provided with the Jack of Diamonds to simplify the installation process. The installation process will copy any required files to the hard disk prior to starting the configuration process. The configuration process consists of setting the I/O Address and IRQ for both the Network and the Modem. Depending on the operating system, the installation and configuration process will differ.

DOS, Windows, and OS/2

For these operating systems a separate installation and configuration program is provided that allows for either an Express or Full setup. The Express setup will activate the configuration program to assist in setting up the desired network driver, or in the case of Netware for DOS/Windows, actually install the workstation Network software. For a Full setup, configuration files are installed to the hard disk allowing for reconfiguring the Jack of Diamonds from the hard disk. In a Windows or OS/2 environment, electronic manuals can be installed. The final part of the Full setup is the invocation of the configuration program, which allows for a wider range of configuration options than provided in the Express setup.

To run the installation software, refer to the Modem and Network Operation description in Quick Setup (page 3-2).

Note: *In most cases the Express setup is sufficient to install the Jack of Diamonds for simultaneous Modem and Network operation.*

Windows NT 3.5

For this operating system, configuring both the Network and the Modem is done via the Network driver configuration. A setup program has been provided to allow installation of electronic manuals as well as to update the Modem definition files for recognition of the Trumpcard Modem.

To run the installation software refer to the Network and Modem Operation description in Quick Setup (page 3-2).

SCO UNIX and Novell UnixWare

For the SCO UNIX and UnixWare operating systems a README.TXT file has been provided to detail all the steps required to configure a driver for both Network and Modem operation. The README.TXT file is on the DOS formatted Network Drivers and Modem Setup diskette under the \UNIX\SCO or \UNIX\UW directories.

De-Installing the Jack of Diamonds Software

One of the options available when running the Jack of Diamonds installation software is the choice to de-install a previous installation if one is detected. The de-install will remove all files copied to the installation directory (default C:\TRUMPCRD) and restore files changed during the configuration.

Any Network setup or installation will not be altered as part of the de-install, as the network operating system workstation software will need to be used to remove the Trumpcard Network driver.

Trumpcard Multi-Function Manager

The Trumpcard Multi-Function Manager (MFM) is a Terminate and Stay Resident (TSR) program that is loaded under certain configurations. The MFM operates as a PC Card client when used with Card Services or as an Enabler when used with Socket Services only; MFM also operates as an enabler when neither Card Services nor Socket Services are present. Both the Networking and Modem functions are available with the MFM loaded; the Trumpcard Network driver will detect and operate with the MFM.

If the MFM is being used, the CONFIG.SYS file -- where the operating system is either DOS or OS/2 -- will be updated to include the following lines:

```
DRIVER=C:\TRUMPCRD\OTCMFMCI.xxx <options>
DRIVER=C:\TRUMPCRD\OTCMFMSI.xxx <options>
```

or

```
DRIVER=C:\TRUMPCRD\OTCMFMCD.xxx <options>
DRIVER=C:\TRUMPCRD\OTCMFMSD.xxx <options>
```

These lines must always follow PCMCIA Card and Socket Services drivers (if present), and always precede any Trumpcard Network drivers (OTCETH).

Command Line Options

The command line options have been provided for completeness; changing the command line options manually may result in configuring the MFM incorrectly for the operation desired.

/BEP=ON/OFF

This option instructs the MFM to enable (ON) or disable (OFF) producing an audible sound when a Trumpcard has been detected. If this option is omitted, the default is ON.

/CIS=nn

This option indicates the starting address of a 4KB memory window that must be used when accessing the Trumpcard without Card Services. If Card Services is present this option is ignored. The address window used will be nn00:0000 to nn00:0FFF, the default value is C8.

Note: *If you are using a memory manager such as EMM386, make sure to exclude the address window range (i.e. X=C800-C8FF).*

/COM=n(IRQ,PORT)

This option has been enhanced to allow setting the Trumpcard Modem to any valid IRQ and I/O PORT value. The COM port to which to set the Modem is indicated by the value 'n' which can range from 1-4, the default is 4 if no /COM option present. The IRQ and PORT number can be used to select a non standard IRQ and PORT number for the specified COM port. The default IRQ and PORT values are as follows:

	PORT	IRQ
COM1	3F8	4
COM2	2F8	3
COM3	3E8	4
COM4	2E8	3

Note: *The MFM will update the BIOS area to reflect the PORT number for the COM port used.*

The default of COM4 is used if this option is not present.

/MFM=aa(IRQ, PORT)

This option instructs the MFM which operating mode, interrupt and port must be used to support the functions provided on the Trumpcard.

The valid operating modes ‘aa’ are SS, SD, DS, and DD. The IRQ and PORT number are needed under certain operating modes and will indicate which IRQ and PORT are to be used by the functions on the Trumpcard.

/SKT=n

This option indicates which socket to check when trying to determine if the Trumpcard is present when operating without Card Services. If Card Services is present this option is ignored. The valid socket numbers are 1 or 2, the default is AUTO detect.

If this option is omitted or AUTO detect is enabled, both Sockets 1 and 2 will be checked for the presence of the Trumpcard starting with Socket 1. During AUTO detection, the software may cause the computer to freeze if an active PC Card is in a Socket being analysed. To prevent this from happening, specifying the socket with this option will restrict the software to testing **only** that socket.

/HRD

This option instructs the MFM **not** to test for the memory window provided by the /CIS option. This is only required if the MFM indicates that it cannot find a free memory window, but the window provided with the /CIS option is known to be available.

Error Messages

Unknown Option in Command Line

The MFM encountered a command line option that it did not recognize. Use the OTCCONF utility to reconfigure the MFM or edit CONFIG.SYS to correct the problem.

Invalid parameter in Command Line

The MFM encountered a command line option parameter that it did not recognize. Use the OTCCONF utility to reconfigure the MFM or edit CONFIG.SYS to correct the problem.

Error in Communicating with Card Services
Error in Communicating with Socket Services

During communications with Card or Socket Services the MFM encountered an unrecoverable error. Reboot the computer. If the situation still exists contact Ositech technical support.

Only supported on PCMCIA 2.X or higher Socket/Card Services

The MFM will only support PCMCIA Socket and Card Services software that comply with PCMCIA version 2.x or higher. Contact your computer manufacturer or dealer for more details on how to obtain a current version.

PCMCIA adapter not found

The MFM has been unable to detect a PCMCIA adapter. If your computer does have a PCMCIA adapter but it is not recognized by the MFM, use the Card and/or Socket Services software provided by the computer manufacturer to remedy this situation.

Failed to obtain IRQ
Failed to obtain I/O Port

These errors are related to obtaining resources needed by the MFM from Card Services. Make sure that the IRQ and I/O port specified are available for use by the MFM. This may require configuring Card Services, refer to the documentation accompanying the Card and Socket Services software.

Unable to configure Trumpcard

The MFM was unable to successfully configure the Trumpcard for the desired mode of operation.

TRUMPCARD not detected, please insert/re-insert the TRUMPCARD and Hit any key

This error may occur if the /SKT option is used on the MFM command line instructing the MFM to only check a specific socket for the Trumpcard. If this is not the case use the diagnostic software provided with the Trumpcard to verify that the hardware is operational.

TRUMPCARD still not detected -- TRUMPCARD Multi-Function Manager not loaded

This will always follow the preceding message, indicating that the MFM has been unable to detect the Trumpcard.

Errors have been detected -- TRUMPCARD Multi-Function Manager not loaded

This message is always the last message whenever an error is encountered.

OTCMOD

This DOS utility is a client/enabler that will configure the Trumpcard to operate as a Modem only with or without Card Services being present. When used without Card Services, OTCMOD acts as an enabler, and removes itself from memory once the Trumpcard is configured. Insertion and removal is not supported in this mode, but no software overhead is incurred either.

When used with Card Services OTCMOD acts as a client and remains resident until removed. Insertion and removal is supported in this mode, but a software overhead penalty is incurred.

Command line options allow the user to determine how to set up and configure the Trumpcard for Modem-only operation.

/COM=n(IRQ,PORT)

This option has been enhanced to allow setting the Trumpcard Modem to any valid IRQ and I/O PORT value. The COM port to set the Modem to is indicated by the value *n,* which can range from 1-4, the default is 4 if no /COM option present. The IRQ and PORT number can be used to select a non standard IRQ and PORT number for the specified COM port. The default IRQ and PORT values are as follow:

	PORT	IRQ
COM1	3F8	4
COM2	2F8	3
COM3	3E8	4
COM4	2E8	3

Note: OTCMOD will update the BIOS area to reflect the PORT number for the COM port used.

The default of COM4 is used if this option is not present.

/CIS=nn

This option indicates the starting address of a 4KB memory window that must be used when accessing the Trumpcard without Card Services. If Card Services is present this option is ignored. The address window used will be nn00:0000 to nn00:0FFF, the default value is C8.

Note: If you are using a memory manager such as EMM386 make sure to exclude the address window range (i.e. X=C800-C8FF).

/SKT=n

This option indicates which socket to check when trying to determine if the Trumpcard is present when operating without Card Services. If Card Services is present this option is ignored. The valid socket numbers are 1 or 2, the default is AUTO detect.

If this option is omitted or AUTO detect is enabled both Sockets 1 and 2 will be checked for the presence of the Trumpcard starting with Socket 1. During AUTO detection the software may cause the computer to freeze if an active PC Card is in a Socket being analysed. To prevent this from happening, specifying the socket with this option will restrict the software to testing **only** that socket.

/CDT

/CDT will instruct the software to check to see if the Modem is currently connected to a telephone line. If the Modem is not connected a non-zero return code will be returned upon program termination, otherwise a return code of zero will be returned.

The return code can be tested in DOS by adding the following lines to AUTOEXEC.BAT:

```
OTCMOD /CDT
IF ERRORLEVEL 1 GOTO NOTCONNECTED
REM
ECHO Modem connection exists
REM
GOTO END
:NOTCONNECTED
REM
ECHO Modem connection does NOT exist
REM
:END
```

Windows Communication Drivers

The Jack of Diamonds default configuration uses the current Windows communications drivers: typically COMM.DRV and VCD.386. If Card Services has been installed, these drivers have most likely been replaced by the PCMCIA aware drivers provided with Card Services. Currently these PCMCIA aware communications drivers inter-operate with only the Generic Enabler provided with Card Services, and will treat the Trumpcard Modem in much the same Non-PCMCIA aware manner as the original Windows communications drivers.

This will only have an effect when hot removal and insertion of the Trumpcard is performed while in Windows. If the Trumpcard is removed, the communications driver will not be aware of this fact and will try to communicate with the Modem as if it were there. When the Trumpcard is then re-inserted and the communications application restarted then all should operate normally.

Ositech has provided PCMCIA aware communications drivers that detect the removal and re-insertion of the Trumpcard. These drivers are automatically installed under Standard Mode Enhanced COM port or OSITECH COM port Jack of Diamonds configurations. If during configuration the Modem is set to Standard Mode Not Enhanced COM port (the default setting), the Trumpcard communication drivers **will not** be installed. The other two configurations will result in the Trumpcard OTCCOMM.DRV and OTCVCD.386 drivers being used. An optional OTCRHSI.DRV driver is provided for communications packages that require the RHSI support.

Troubleshooting

Running the Diagnostic Software

Ositech provides a self test diagnostic program to verify that all functions on the Jack of Diamonds are working properly. The diagnostic program performs basic tests of the Network and Modem functions.

Before running the diagnostics software successfully you require the following information:

- The numbering or orientation of the PCMCIA slots on the computer (i.e. 1, 2 or A, B)
- A free 64 byte range of I/O ports on 64 byte I/O boundary (i.e. 300, 340, not 310, or 320)
- An available interrupt from these possible values 3-5,7,9-12,14, and 15
- A free 4K block of local memory

To begin testing the Jack of Diamonds, insert it into the computer's PCMCIA slot and connect the Network cable, and the Modem cable; refer to the *Hardware Installation* section in this guide for specific details.

Boot up your computer in DOS, if possible do not load any drivers (i.e. bypass CONFIG.SYS and AUTOEXEC.BAT). Insert the Trumpcard Diagnostic diskette into the floppy drive, make the floppy drive your current drive (i.e. A:) then enter `JODDIAG [ENTER]` to run the diagnostic software. Select the 'Basic Adapter Tests' from the initial menu, a second menu will allow setting the Socket, I/O port, interrupt and memory windows needed to enable the Trumpcard adapter. In most cases the default values shown below will work satisfactorily.

Socket:	A
I/O Port:	300
Interrupt:	5
Memory Window:	C800

When satisfied with the settings, select ‘Start Basic Adapter Tests’ to perform the tests. The test menu will then be presented along with a list of the tests to be performed and the current test results. All test results must indicate OK for successful verification of the Trumpcard Jack of Diamonds.

Note: *The basic adapter tests can fail due to an improper test environment. Verify that the Socket, I/O port, Interrupt and Memory Window are not in use by other hardware on the computer. If using a memory manager such as EMM386 make sure to exclude (X=nnnn-nnnn) the memory window selected or simply do not load the memory manager when running the diagnostic software.*

Answers to Common Questions

What is the recommended way of setting up the Trumpcard Jack of Diamonds?

In most cases the default provided during installation and configuration will be suitable.

When should I use the Modem Only mode or LAN Only mode?

The single-function Ethernet or Modem-only modes have been provided for specialized user applications and PCMCIA adapter hardware limitations. Under most circumstances these modes are not needed and should only be used if a situation absolutely requires it.

What is COM port Compatibility, and what is it used for?

The Jack of Diamonds Modem hardware does provide a true PC communications port hardware that is 16550 (FIFO based) COM port compatible. This compatibility allows the Modem to be used directly by off-the-shelf communications software packages without need of specialized software (i.e. I/O port or IRQ redirectors). The COM port compatibility is mainly for DOS based applications or for DOS compatibility in Windows.

When do I use the Trumpcard Windows Communication Drivers?

The Trumpcard Windows Communication Drivers are not needed to support simultaneous Network and Modem operation in Windows. They have been provided to allow automatic reconfiguration of the communications port if the Trumpcard is removed and then re-inserted while in Windows. If you are using Windows for Workgroups and plan on using remote access services, then you cannot replace the standard COMM.DRV provided.

My communications software does not work

Verify that the Trumpcard Modem is functional by first running the diagnostic software on the Trumpcard (see Troubleshooting section). If the diagnostic results indicate that the Trumpcard is operational, then most likely the Trumpcard drivers or applications have not been configured properly.

Note: If diagnostic testing indicates that the Trumpcard is operational, note the I/O port Address and IRQ settings used for this result, as they have proven successful.

For operating systems that support Generic Enablers for Modem PC Cards, the Trumpcard should be recognized, and enabled to operate in Modem only mode. Please de-install any other Trumpcard drivers when testing the Modem only functionality in this manner. Refer to the documentation accompanying the Generic Enabler for details on how to determine the COM port and IRQ used when enabling the PC Card.

For operating systems that do not provide Generic Enablers, the Trumpcard driver is the only method of enabling the Modem. Note the I/O address (COM port) and IRQ assigned to the Modem, if possible use the same I/O address and IRQ used by the diagnostic software.

In order for any communications application to properly operate with the Trumpcard Modem, it must be configured to use the correct I/O address and IRQ (COM port). This can differ based on the operating system used. Below are lists of what can be used based on the operating system to determine if the Modem can be accessed. In all cases refer to any documentation provided by the application software on how to setup and operate a Modem.

DOS

Use the Generic Enabler available with Card Services or use the Trumpcard Enabler OTCMOD to enable the Modem only. If using MS-DOS the MSD utility can be used to determine if the COM port is accessible. This will verify that the I/O address does not conflict with other hardware. If you’re not using MS-DOS, use a communications package to access the Modem and enter AT commands such as ATI3 to have the Modem respond.

Windows / Windows for Workgroup

Attempt to verity that the Modem is accessible in DOS. If accessible in DOS but not in Windows, use your terminal application to check the Control Panel Port settings for the COM port being used. The Terminal application provided with Windows can also be used to access the Modem, but make sure the communication settings are set to the correct COM port.

Windows NT

Verify that the COM port has been configured using the Control Panel Ports configuration program. The COM port will not be accessible in Windows NT until configured. If the COM port has been configured, check the Event Log for any Serial Events indicating that the COM port has not been detected. If errors have been logged, verify that the I/O Address and IRQ settings configured for the Control Panel Ports match those used to configure the Trumpcard.

SCO Unix and Novell UnixWare

Verification in these operating systems are more involved and require knowledge on how to setup and use CU. Please review the documentation provided with the Trumpcard Unix drivers for more details on how to setup and operate CU to test Modem operation.

Must I use Card and Socket Services?

All Trumpcard software has been designed to operate with or without Card and Socket Services. If Card and Socket Services are not present, the hot insertion and removal capability of PCMCIA is not provided, but a memory savings of not having to load Card and Socket is incurred.

Whose Card and Socket Services should I use?

The Trumpcard software will operate with most Card and Socket Services software provided that the Card and Socket Services software used conforms to the PCMCIA 2.0 and higher standard. If your computer did not come with Card and Socket Services and you wish to operate with it, contact your computer manufacturer or dealer for more details.

How do I use the Trumpcard Power Saving features?

The design of the Jack of Diamonds provides two methods of power saving features. One totally powers-off the function that is not in use; if operating in Network or Modem-only mode, the other function is automatically powered-off. If operating in multi-function mode, power is only applied to the function that has a driver loaded to operate it. Dynamic power saving is provided in the multi-function mode.

The second method of power savings is provided by the Modem in that it has a sleep mode that is automatically initiated after a fixed time of inactivity. The inactivity time is defaulted to 10 seconds but can be adjusted. Refer to the *Modem Reference Manual* for mode details.

Can I use two or more Trumpcards?

The use of two or more Trumpcards simultaneously in one computer is currently supported under Microsoft NT and 95, but not under DOS and UNIX; refer to the README.JOD file on the installation diskette(s) for up to date lists of which Operating Systems support this ability. Support for different Trumpcards being hot swapped in one computer is available widely. Care must be taken when using different Trumpcards in one computer to ensure that the setting for the Multi-Function Manager provides the correct environment in each case.

Network Software Installation

In order to assist with the installation and configuration of networks drivers, Ositech has provided Installation Software for the DOS / Windows and OS/2 operating systems. Follow the instructions printed on the appropriate diskette label for details on how to invoke the Installation Software. For operating systems other than DOS / Windows and OS/2, please refer to the appropriate section for instructions on how to install and configure the Network driver under these operating systems.

The following sections provide details on how to install and configure the Trumpcard Ethernet Network drivers. The Network operating systems have been listed alphabetically.

Note: *If the Trumpcard you are using provides other functions in addition to Ethernet networking, please refer to the Installation Manual accompanying the Trumpcard for details on how to operate the functions simultaneously.*

Banyan VINES

To install Banyan VINES version 4.x and later on a DOS NDIS workstation, you must manually install the Ositech Trumpcard NDIS device driver.

1. Follow the instructions for workstation installation in accordance with your Banyan VINES workstation installation manual.
2. At this point you should have all the relevant Banyan VINES files in a directory on your hard disk drive. (In this manual we will assume that the Banyan Vines directory is called \VINES).
3. Copy the files PROTOCOL.INI and OTCETH.DOS from the \VINES directory on the Trumpcard driver diskette to the Banyan VINES directory.

   (i.e. `COPY  A:\VINES\OTCETH.DOS  C:\VINES`)
4. Use an ASCII text editor and edit the CONFIG.SYS file to include the following lines:

```
DEVICE=C:\VINES\PROTMAN.DOS /I:C:\VINES

DEVICE=C:\VINES\OTCETH.DOS
```

   (The command to edit the file is `EDIT C:\CONFIG.SYS`)
5. Change to the \VINES directory.

6. Type PCCONFIG and select ‘Network Card Settings’ and then select ‘NDIS Ethernet’.
7. At the ‘PROTOCOL.INI’ bindings prompt type OSITECH_NIF and press [F10] to save and press [ESC] to return to main menu.
8. Select ‘Login Environment Settings’, then select ‘Default Communications driver’, then select ‘NDIS Ethernet’. Press [ESC] to return to main menu and [F10] to save.

Note: Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.

DEC PATHWORKS

To install DEC PATHWORKS version 4.1 on a DOS NDIS workstation, you can use the automated installation provided with PATHWORKS for the Ositech Trumpcard NDIS device driver.

1. Install DEC PATHWORKS using the instructions provided in the DEC PATHWORKS manual.
2. In order to set up the Trumpcard Network adapter for use with DEC PATHWORKS, please run the PATHWORKS Network setup software. (i.e. NETSETUP).
3. Choose ‘Ethernet controller type’ and select ‘Other NDIS’.
4. Insert the Trumpcard driver diskette into drive A.
5. When prompted for the path to the driver file, type :

```
A:\DOS\OTCETH.DOS
```

6. When prompted for the path to the PROTOCOL.INI file, type:

```
A:\DOS
```

7. Complete NETSETUP and return to the DOS prompt. The PROTOCOL.INI file in your DECNET directory should appear something like the following:

```
[protocol manager]
DRIVERNAME=PROTMAN$

[IPX4MAC]
DRIVER=IPX$MAC
BINDINGS=OTCETH.DOS

[DATALINK]
DRIVERNAME=LL$MAC
```

```
LG_BUFFERS=16
SM_BUFFERS=6
OUTSTANDING=32
HEURISTICS=6
BINDINGS=OTCETH.DOS

[OTCETH.DOS]
DRIVERNAME=OTCETH$
```

Your CONFIG.SYS file should contain the following lines :

```
DEVICE=C:\DECNET\PROTMAN.SYS /I:C:\DECNET
DEVICE=C:\DECNET\OTCETH.DOS
```

Your AUTOEXEC.BAT file should contain the following line:

```
CALL \DECNET\STARTNET
```

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

FTP Software LanWatch

The Ositech Trumpcard hardware and software supports promiscuous mode operation, allowing it to work with products such as FTP's LanWatch.

The Ositech Trumpcard NDIS device driver installation will be automated to work with LanWatch once copied over to your hard disk.

1. Create a directory on the C: drive called NDIS (i.e. MD C:\NDIS).
2. Copy the files OTCETH.DOS and PROTOCOL.INI from the \FTP directory on Trumpcard driver diskette to \NDIS directory on C: drive (i.e. COPY A:\FTP\OTCETH.DOS C:\NDIS).
3. Run LANWatch install program (i.e. INSTALL).
4. When prompted for ‘Packet driver or NDIS driver’ select ‘NDIS driver’.
5. When asked do you have a PROTOCOL.INI file answer:
   `YES`
6. When prompted for path to PROTOCOL.INI file type:
   `C:\NDIS`
7. When asked which driver does LanWatch bind to type:
   `OSITECH_NIF`
8. When prompted for full path and filename of NDIS driver type:
   `C:\NDIS\OTCETH.DOS`

Continue with installation.

The following are examples of the CONFIG.SYS, AUTOEXEC.BAT and PROTOCOL.INI file modifications after installing LanWatch.

CONFIG.SYS

```
DEVICE=C:\LW\PROTMAN.DOS /I:C:\NDIS
DEVICE=C:\LW\FTPSOFT.DOS
DEVICE=C:\NDIS\OTCETH.DOS
```

AUTOEXEC.BAT

```
C:\LW\NETBIND.COM
```

PROTOCOL.INI

```
[OSITECH_NIF]
DRIVERNAME=OTCETH$

[LANWATCH]
DRIVERNAME = FTPSOFT$
BINDINGS = OSITECH_NIF
```

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

IBM LAN Server

When installing IBM LAN Server 3.0 or 4.0 you may use the OEM Network adapter driver import capability for the Ositech Trumpcard NDIS device driver. For a DOS workstation, follow the instructions for installing the IBM LAN Support Program.

For an OS/2 workstation you must first install LAN Adapter and Protocol Support (LAPS) and then import the Trumpcard driver.

1. Follow the instructions for installing LAPS in accordance with your IBM LAN Adapter and Protocol Support Configuration Guide. You must first install LAPS on the workstation in order to install additional Network adapter drivers.
2. Issue the LAPS command from the IBMCOM subdirectory of the drive that contains the copy of LAPS.
3. Select ‘INSTALL’ from the LAPS logo window.
4. When prompted for the source path of additional Network drivers enter, A:\OS2. Insert the Trumpcard driver diskette into Drive A.
5. Select ‘Configure’, then select ‘Configure LAN Transports’, and then select ‘Continue’.

6. Remove any existing adapters and protocols from the Current Configuration menu that are not required.

7. Select ‘Ositech Trumpcard’ adapter from the Network Adapters menu and then select ‘Add’.

8. Add the required protocols from the Protocol menu, and finally select ‘OK’ when complete.

After installation of the Trumpcard NDIS device driver and protocols, you must install the needed requester (DOS or OS/2) to complete the installation.

The following are examples of changes made to the CONFIG.SYS and PROTOCOL.INI files on an OS/2 workstation installation.

CONFIG.SYS

```
DEVICE=C:\IBMCOM\LANMSGDD.OS2 /I:C:\IBMCOM
DEVICE=C:\IBMCOM\PROTMAN.OS2 /I:C:\IBMCOM
RUN=C:\IBMCOM\PROTOCOL\NETBIND.EXE
RUN=C:\IBMCOM\LANMSGEX.EXE
DEVICE=C:\IBMCOM\PROTOCOL\NETBEUI.OS2
DEVICE=C:\IBMCOM\PROTOCOL\NETBIOS.OS2
DEVICE=C:\IBMCOM\PROTOCOL\LANDD.OS2
DEVICE=C:\IBMCOM\PROTOCOL\LANDLLDD.OS2
DEVICE=C:\IBMCOM\MACS\OTCETH.OS2
RUN=C:\IBMCOM\PROTOCOL\LANDLL.EXE
```

PROTOCOL.INI

```
[PROT_MAN]
DRIVERNAME = PROTMAN$

[IBMLXCFG]
OSTETH_nif = OTCETH.nif
LANDD_nif = LANDD.nif
NETBEUI_nif = NETBEUI.nif

[LANDD_nif]
DRIVERNAME = LANDD$
BINDINGS = OTCETH_nif
ETHERAND_TYPE = "I"
```

```
:
:
[NETBEUI_nif]
DRIVERNAME = NETBEUI$
BINDINGS = OTCETH_nif
ETHERAND_TYPE = "I"
:
:

[OTCETH_nif]
DRIVERNAME = OTCETH$
```

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

IBM LAN Support Program

When installing the IBM Local Area Network Support Program (LSP) version 1.3 or later, you may use the OEM Network adapter driver import capability for the Ositech Trumpcard NDIS device driver.

Follow the instructions in the LSP manual User's Guide for adapter installation using the *Installation Aid*. Any references to an ADAPTER OPTION DISKETTE means the Trumpcard Driver diskette provided.

1. At the ‘Environment Information’ screen, answer YES for the question ‘Do you have an adapter Option Diskette?’.
2. At the ‘Process Adapter Option Diskette’ screen follow the instructions and:
    - Remove LSP 1.3 Installation Diskette from the drive.
    - Insert the Trumpcard driver diskette.
    - Press [ENTER].
3. At the ‘Current Configuration’ screen go to the box ‘Selections for Adapter’ and select ‘Ositech Trumpcard’.
4. Press [F4] – to install the IBM LSP and the Ositech Trumpcard NDIS driver.

End of Installation.

The following are examples of possible CONFIG.SYS file setups. These lines would be present in the CONFIG.SYS file.

For one NDIS adapter with both IEEE 802.2 and NETBIOS support, the sequence is as follows:

```
DEVICE=C:\LSP\PROTMAN.DOS /I:\LSP
DEVICE=C:\LSP\OTCETH.DOS
DEVICE=C:\LSP\DXMA0MOD.SYS 001
DEVICE=C:\LSP\DXME0MOD.SYS
DEVICE=C:\LSP\DXMT0MOD.SYS O=N
```

For one NDIS adapter with only NETBIOS support, the sequence is as follows:

```
DEVICE=C:\LSP\PROTMAN.DOS /I:\LSP
DEVICE=C:\LSP\OTCETH.DOS
DEVICE=C:\LSP\DXMA0MOD.SYS.001
DEVICE=C:\LSP\DXMJ0MOD.SYS
```

The following is an example of a possible PROTOCOL.INI file setup

```
[PROTMAN_MOD]
DRIVERNAME = PROTMAN$

[DXME0_MOD]
DRIVERNAME = DXME0$
BINDINGS = OSITECH_MOD

[OSITECH_MOD]
DRIVERNAME = OTCETH$
```

Also in your AUTOEXEC.BAT file the following line should have been added:

```
C:\LSP\NETBIND
```

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

Microsoft LAN Manager

To install Microsoft LAN Manager versions 2.0, 2.1 and 2.2, the Trumpcard driver diskette contains the required files and directory structure to allow the LAN Manager installer to import an OEM disk.

1. Begin installation of LAN Manager using SETUP from the LAN Manager Installation diskettes.
2. When prompted to select the available Network adapter driver, choose ‘Other Driver’ at the bottom of the screen.
3. When prompted, insert the Trumpcard driver diskette.
4. Select the ‘OSITECH TRUMPCARD’ from the menu.
5. Continue with installation until complete.

Your PROTOCOL.INI file in your LANMAN directory should appear as follows:

```
[PROTMAN_MOD]
DRIVERNAME=PROTMAN$

[NETBEUI_NIF]
BINDINGS=OSITECH_MOD

[OSITECH_MOD]
DRIVERNAME=OTCETH$
```

In your CONFIG.SYS the following lines should be present:

```
DEVICE=C:\LANMAN\PROTMAN.DOS /I:C:\LANMAN
DEVICE=C:\LANMAN\OTCETH.DOS
```

In your AUTOEXEC.BAT file the following line should appear

```
C:\LANMAN\NETBIND
```

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

Microsoft Windows for Workgroups

To install Microsoft Windows for Workgroups (WFW) versions 3.1 and 3.11, the Trumpcard driver diskette contains the required files to allow the WFW installer to import an OEM disk.

1. Run the Windows for Workgroups installation according to the manual provided.
2. When prompted for ‘INSTALL NEW NETWORK ADAPTER’, select ‘Unlisted’ or ‘Updated Network Adapter’.
3. When prompted to ‘INSERT NETWORK DRIVER DISKETTE IN DRIVE A:’ , place the Trumpcard driver diskette in drive A.
4. For WFW 3.1 enter

```
A:\WFW\31
```

For WFW 3.11 enter

```
A:\WFW\311
```

If you have used the configuration software to configure the Network driver diskette use the default A:\

Then select ‘OK’.

5. Select ‘OSITECH TRUMPCARD’ from menu.
6. Continue with installation until complete.

If you have setup to use both the WFW 3.11 and Novell ODI, the following example shows the PROTOCOL.INI, CONFIG.SYS, AUTOEXEC.BAT and NET.CFG file changes made during the installation of Windows for Workgroups version 3.11.

Your PROTOCOL.INI file under the Windows directory should contain the following :

```
[Network.setup]
version=0x3110
netcard=osi$otceth,1,OSI$OTCETH,4
netcard=ms$odimac,1,MS$ODIMAC,4
transport=ms$nwlinknb, NWLINK
transport=ms$netbeui, NETBEUI
lana0=osi$otceth,1,ms$netbeui
lana1=ms$odimac,1,ms$netbeui
lana2=osi$otceth,1,ms$nwlinknb
```

```
[net.cfg]
PATH=C:\NOVELL\NET.CFG

[OSI$OTCETH]
[LINK DRIVER OTCETH]
[Link Driver XXXX]

[Link Support]
NewMaxBoards=Max Boards 8
OldMaxBoards=Max Boards 8
[NWLINK]
BINDINGS=OTCETH

[NETBEUI]
BINDINGS=OTCETH,XXXX
LANABASE=0
SESSIONS=10
```

In your CONFIG.SYS the following line should be present:

```
DEVICE=c:\windows\ifshlp.sys
```

In your AUTOEXEC.BAT the following lines should be present:

```
C:\WINDOWS\NETSTART
CD \NOVELL
LSL
OTCETH
IPXODI
C:\WINDOWS\ODIHLP.EXE
NETX
```

Your NET.CFG file under the Novell directory would contain the following lines:

```
LINK DRIVER OTCETH
     Frame Ethernet_802.3
     Frame Ethernet_II
     Frame Ethernet_802.2
     Frame Ethernet_SNAP

LINK DRIVER XXXX
     Frame Ethernet_802.3
     Frame Ethernet_II
     Frame Ethernet_802.2
     Frame Ethernet_SNAP

Link Support
     Max Boards 8
```

Refer to the Installation Instructions for Novell Networks for details on Netware installation and setup.

Note: *If the Trumpcard is a Multi-Function adapter, additional steps may be required to complete the full installation. Refer to the Installation Guide accompanying the adapter for more details.*

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

Microsoft Windows NT 3.5

The Trumpcard Windows NT 3.5 NDIS3.0 driver is a Network driver and enabler for Intel, Databook and compatible PCMCIA equipped computers. With this driver installed, networking functions will be available under Windows NT 3.5.

The Trumpcard Windows NT 3.5 driver requires that the Trumpcard PC Card be inserted prior to the driver being loaded. If no Trumpcard is found, the driver will not be loaded and networking functions will NOT be available. When the driver has successfully loaded, if the Trumpcard is now removed from the PCMCIA slot unpredictable results will occur. The Trumpcard Windows NT 3.5 Driver DOES NOT support hot insertion and removal (hot swapping).

To install the Trumpcard NDIS3.0 Network driver for Windows NT 3.5, the Trumpcard Network Drivers diskette contains the required files to allow Windows NT installer to import an OEM disk.

1. From the Main Program Group select CONTROL PANEL, and then NETWORK.
2. Choose ADD ADAPTER, then select <OTHER> from the Network Adapter Card list of choices.
3. Select CONTINUE, when prompted, to insert the disk and to enter a path name, place the Network Driver diskette into the floppy drive and enter A:\WINNT35.
4. The default settings will work in most environments. Select CONTINUE once finished configuring the LAN driver, select OK once finished setting up the Network.
5. Restart the computer to allow loading the newly installed Network driver.

Note: *If the Trumpcard is a Multi-Function adapter, additional steps may be required to complete the full installation. Refer to the Installation Guide accompanying the adapter for more details.*

Note: Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.

Microsoft Workgroup Connection for DOS

To install Workgroup Connection for DOS, the Trumpcard driver diskette contains the required files to allow the installer to import an OEM diskette.

1. Run SETUP from MSWGCN Workgroup Connection diskette.
2. When prompted to select a Network card, select
   "Network card not shown on list below..."
3. When prompted for the location (path) of the OEM driver, insert the Trumpcard driver diskette and enter A:\WFW\31
4. Press ENTER to select the highlighted entry: Ositech Trumpcard
5. Continue with the installation, if prompted to re-insert the OEM driver diskette be sure to enter the location (path) A:\WFW\31 as well.

The following are examples of changes made to the CONFIG.SYS, AUTOEXEC.BAT and PROTOCOL.INI

CONFIG.SYS

```
DEVICE=C:\DOS\PROTMAN.DOS /I:C:\DOS
DEVICE=C:\DOS\WORKGRP.SYS
DEVICE=C:\DOS\OTCETH.DOS
```

AUTOEXEC.BAT

```
C:\DOS\NET START
```

PROTOCOL.INI

```
[Network.setup]
version=0x3110
netcard=ms$otceth$nic,1,MS$OTCETH$NIC
transport=ms$netbeui,MS$NETBEUI
lana0=ms$otceth$nic,1,ms$netbeui

[protman]
DriverName=PROTMAN$
PRIORITY=MS$NETBEUI

[MS$OTCETH$NIC]
DriverName=OTCETH$
MEM=0xc800
```

```
Interrupt=5
IOBase=0x300
[MS$NETBEUI]
Drivername=netbeui$
SESSIONS=6
NCBS=12
BINDINGS=MS$OTCETH$NIC
LANABASE=0
```

Note: Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.

NDIS (Generic)

These steps outline how to install the Trumpcard NDIS device driver for Network operating systems that are not described in this manual, and will operate with a NDIS driver. The easiest way to perform the installation is to install a NDIS driver that is supported by the Network operating system, and then edit the required files to use the Trumpcard NDIS driver. These steps will apply to both DOS and OS/2 environments.

The 3COM Etherlink driver will be used as an example, but any NDIS driver will do.

1. Follow the instructions for workstation installation in the installation manual.
2. When prompted for the adapter, select any of the available ethernet adapters that support NDIS (i.e. 3COM ETHERLINK).
3. Continue with the installation until complete.
4. After the automatic installation has completed, you must make changes to your CONFIG.SYS and PROTOCOL.INI files, as well as copying over the Trumpcard NDIS driver.
5. First edit the CONFIG.SYS file on the root `C:>` drive. This is done by using a standard text editor such as EDIT in DOS or E in OS/2.
6. In the CONFIG.SYS file, locate the lines that are related to the Network operating system being used. Typically the lines would be:

```
DEVICE=C:\<path>\PROTMAN.SYS /I:<path>
DEVICE=C:\<path>\ELNK.DOS  <-- DOS
```

or

```
DEVICE=C:\<path>\ELNK.OS2  <-- OS2
```

Change the second line above to:

```
DEVICE=C:\<path>\OTCETH.DOS  <-- DOS
```

or

```
DEVICE=C:\<path>\OTCETH.OS2  <-- OS2
```

Save the changes made to this file.

7. Next, edit the PROTOCOL.INI file, the file will be in the <path> directory.

   In this file under the heading [ELNK_NIF] please change the line DRIVERNAME=ELNK$ to read DRIVERNAME=OTCETH$

   Also remove any existing settings under this line(i.e. INTERRUPT, IOADDRESS, DMACHANNEL, etc.)

   Remove any keywords that were for the 3COM Etherlink driver. Add any required settings using the keywords described in Appendix B. Save the changes made to this file.

8. Finally, place a copy of the Trumpcard NDIS Device Driver (OTCETH.DOS from the \DOS subdirectory or OTCETH.OS2 from the \OS2 subdirectory) on the Trumpcard driver diskette to the directory on your hard disk drive that contains your Network files <path>.

Your Network installation is now complete.

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

Novell Netware for DOS

Depending on the version of Netware, the installation of the Ositech Trumpcard ODI driver will be done automatically or must be done manually.

Netware NETX

For Netware using NETX.EXE, the Trumpcard ODI driver must be installed manually by copying the Trumpcard ODI driver (OTCETH.COM) to the directory containing the workstation software.

The Trumpcard ODI driver is located in the \NETWARE\DOS subdirectory on the Trumpcard driver diskette. In order to configure the Trumpcard ODI driver, a NET.CFG file must be created; refer to Appendix A for ODI keywords.

Netware VLM

For Netware using VLM.EXE the Trumpcard ODI driver can be installed automatically by using the Netware Client diskettes.

1. Follow the instructions in the Workstation Basics and Installation for adapter installation using the ‘Netware Client Install’. Any references to an ADAPTER OPTION DISKETTE means the Trumpcard driver diskette provided with the PC Card.
2. Proceed through steps 1, 2, and 3 of the Netware Client Install making any changes as required.
3. At STEP 4 of the Netware Client Install, press [ENTER] to install the Netware adapter driver.
4. When prompted to insert the adapter diskette, follow the instructions and Remove the Netware Client Installation Diskette from the drive. Insert the Trumpcard driver diskette. Press [ENTER].
5. Follow the instructions to select the Trumpcard ODI driver and configure the driver as required.
6. At STEP 5 press [ENTER] to install the Client software on the workstation.

End of Installation.

Loading the DOS ODI Driver

The DOS ODI driver OTCETH.COM for the Trumpcard PC Card is an executable DOS TSR (Terminate and Stay Resident) program.

It must be loaded ***always after*** the LSL (Link Support Layer) module and ***before*** the IPXODI (IPX Stack Protocol).

An example of a possible AUTOEXEC.BAT file allowing the loading of necessary modules to establish a link from a DOS Workstation to a Netware Server is:

```
LSL
OTCETH
IPXODI
NETX or VLM
```

Note: *If your Ethernet frame type is NOT 802.2, you must use the NET.CFG file to supply the appropriate frame type. The OTCETH driver will default to 802.2 in accordance with Novell's specifications.*

Note: *Keyword specifications associated with the ODI drivers are explained in Appendix A, Error Messages in Appendix C.*

Novell Netware for OS/2

When installing Netware for OS/2, you may use the automatic installation for the Ositech Trumpcard ODI device driver.

Netware 3.x and 4.x

1. Follow the instructions in the Netware Requester for OS/2 manual on how to Install and Configure the Novell Netware OS/2 Requester.
2. During installation of the requester, when prompted for the Network Interface Card Driver, enter OTCETH.SYS.
3. The installation utility will confirm if this is a third party NIC driver, enter YES
4. When prompted to enter the file to install, enter

   A:\NETWARE\OS2\OTCETH.SYS

   Insert the Trumpcard driver diskette into Drive A.
5. Continue with the Netware requester installation, the final step will be to configure the NET.CFG file. See Appendix A for ODI keywords.

End of Installation.

Loading the OS/2 ODI Driver

The OS/2 ODI driver OTCETH.SYS for the Trumpcard is an OS/2 device driver, it must ***always*** be loaded ***after*** the LSL (Link Support Layer) module and ***before*** the IPX (IPX Protocol Stack).

Below is an example of a possible CONFIG.SYS file which allows the loading of necessary modules to establish a link from an OS/2 Workstation to a Netware Server:

```
REM --- Netware Requester statements BEGIN ---

DEVICE=C:\NETWARE\LSL.SYS

RUN=C:\NETWARE\DDAEMON.EXE

DEVICE=C:\NETWARE\OTCETH.SYS

DEVICE=C:\NETWARE\IPX.SYS

rem DEVICE=C:\NETWARE\SPX.SYS

rem RUN=C:\NETWARE\SPDAEMON.EXE

rem DEVICE=C:\NETWARE\NMPIPE.SYS
rem DEVICE=C:\NETWARE\NPSERVER.SYS

rem RUN=C:\NETWARE\NPDAEMON.EXE NP_COMPUTERNAME

DEVICE=C:\NETWARE\NWREQ.SYS

IFS=C:\NETWARE\NWIFS.IFS

RUN=C:\NETWARE\NWDAEMON.EXE

rem DEVICE=C:\NETWARE\NETBIOS.SYS

rem RUN=C:\NETWARE\NBDAEMON.EXE

rem DEVICE=C:\NETWARE\VIPX.SYS

rem DEVICE=C:\NETWARE\VSHELL.SYS

REM --- Netware Requester statements END ---
```

Note: *If your Ethernet frame type is NOT 802.2, you must use the NET.CFG file to supply the appropriate frame type. The OTCETH driver will default to 802.2 in accordance with Novell's specifications.*

Note: *Keyword specifications associated with the ODI driver are explained in Appendix A, Error Messages in Appendix C.*

Novell Unixware DLPI Driver

The Trumpcard DLPI Driver is an AT&T Data Link Provider Interface (DLPI) compliant loadable STREAMS driver, for UNIX System V Release 4.2. The driver has a built in enabler for Intel, Databook and compatible PCMCIA equipped computers. With this driver installed networking functions will be available under Unixware.

The Trumpcard DLPI driver requires that the Trumpcard PC Card be inserted prior to the driver being loaded. If no Trumpcard is found the driver will not be loaded and networking functions will NOT be available. When the driver has successfully loaded, unpredictable results will occur if the Trumpcard is now removed from the PCMCIA slot. The Trumpcard DLPI Driver DOES NOT support hot insertion and removal.

To install the Trumpcard DLPI driver, you need to create an Ositech DLPI Driver Disk using the INSTALL shell script from the DOS formatted Network Drivers distribution diskette provided with the PC Card. The first step is to copy the INSTALL shell script to the Unixware /tmp directory from the distribution diskette \UNIX\UW directory.

The installation process performed by the INSTALL shell script consists of two basic steps:

1. Creating the Ositech DLPI Driver Disk from the compressed disk image extracted from the osi_uw.tar archive.
2. Second, installing the driver from the Ositech DLPI Driver Disk using the pkgadd utility.

Note: If the Trumpcard is a Multi-Function PC Card, additional steps may be required to complete the full installation. Refer to the Installation Guide accompanying the PC Card for more details.

In order to successfully complete the installation process the following is required:

- One blank 3.5 inch high density (1.44MB) diskette labelled “Ositech Trumpcard DLPI Driver Disk”.
- IO ports and IRQs that you wish to assign to the LAN function. The LAN will need 32 ports (default of 0x300-0x31f).
- A 4K memory window that you can assign to the driver in the range of 0xc0000 and 0xf0000. The default is 0xc8000.
- Ability to use pkgadd to install and configure the Network software.
- 2MB of free disk space for the various temporary files that are created during the install process on the file system containing the /tmp directory.

To create the Ositech Trumpcard DLPI Driver install diskette, and to install the driver, you need only execute the INSTALL shell script that you have copied to the /tmp directory. You can only execute the INSTALL script after you have become the root user.

Note: It is highly recommended that you run the shell script as root, because the installation process will require that you relink the kernel.

```
$ su
enter the root password at the Password: prompt

# cd /tmp
# pkgadd -d diskette1
```

Then simply follow the instructions provided by the installation script to complete the installation of the driver.

SCO UNIX LLI Driver

The Trumpcard LLI Driver is a Network driver and enabler for Intel, Databook and compatible PCMCIA equipped computers. With this driver installed networking functions will be available under SCO UNIX.

The Trumpcard LLI driver requires that the Trumpcard PC Card be inserted prior to the driver being loaded. If no Trumpcard is found, the driver will not be loaded and networking functions will NOT be available. When the driver has successfully loaded, unpredictable results will occur if the Trumpcard is now removed from the PCMCIA slot. The Trumpcard LLI Driver DOES NOT support hot insertion and removal.

To install the Trumpcard LLI driver, you need to create an Ositech LLI Driver Disk using the INSTALL shell script from the DOS formatted Network Drivers distribution diskette provided with the adapter. The first step is to copy the INSTALL shell script to the UNIX /tmp directory from the distribution diskette \UNIX\SCO directory. If you do not have the DOS file system support installed on your UNIX system, then you must also copy the osi_sco.tar file to the /tmp directory. If you wish to install the DOS file system support, then execute the UNIX command “mkdev dos” as the root user, and reboot your machine.

The installation process performed by the INSTALL shell script consists of three basic steps:

1. Creating the Ositech LLI Driver Disk from the compressed disk image extracted from the osi_sco.tar archive.
2. Second, installing the driver from the Ositech LLI Driver Disk using the custom utility.
3. Binding the Network software to the Trumpcard driver using netconfig.

Note: *If the Trumpcard is a Multi-Function PC Card additional steps may be required to complete the full installation. Refer to the Installation Guide accompanying the PC Card for more details.*

In order to successfully complete the installation process the following is required:

- One blank 3.5 inch high density (1.44MB) diskette libelled “Ositech Trumpcard LLI Driver Disk”.
- IO port and IRQ that you wish to assign to the LAN function. You can use *hwconfig* to see what devices are currently configured into your UNIX system. The LAN will need 32 ports (default of 0x300-0x31f).
- A 4K memory window that you can assign to the driver in the range of 0xc0000 and 0xf0000. The default is 0xc8000.

- Ability to use *netconfig* to configure the Network software.
- 2MB of free disk space for the various temporary files that are created during the install process on the file system containing the /tmp directory.

To create the Ositech Trumpcard LLI Driver install diskette, and to install the driver, you need only execute the INSTALL shell script that you have copied to the /tmp directory. You can only execute the INSTALL script after you have become the root user.

Note: *It is highly recommended that you run the shell script as root, in single-user mode, because the installation process will require that you relink the kernel.*

```
$su
enter the root password at the Password: prompt
```

If you are not already in the System Maintenance mode, use the following command to reboot the machine:

```
# /etc/shutdown -i1

INIT: SINGLE USER MODE
```

Type CONTROL-d to proceed with normal setup,
(or give root password for system maintenance):

enter the root password to activate the System Maintenance mode

```
# cd /tmp

# sh install
```

Then simply follow the instructions provided by the installation script to complete the installation of the driver.

Section Four

Technical Specifications

Common

PCMCIA compatibility	Type II Release 2.01
Registration	FCC Part 68 and Part 15 Class B Canadian DOC and selected International Countries
Power Consumption measured in mA @ 5V	Ethernet and Modem powered down: 14400 (17 mA) 28800 (17 mA) 33600((17 mA) Modem only: 14400 (138 mA) 28800 (222 mA) 33600 (222 mA) Ethernet Only: 10BaseT (86 mA) 10Base2 (203 mA) Combined Ethernet & Modem: 14400: 10BaseT (209 mA) 10Base2 (307 mA) 28800: 10BaseT (292 mA) 10Base2 (430 mA) 33600: 10BaseT (292 mA) 10Base2 (430 mA)
Operating Environment	Temperature 0°C- 50° C (32°F-122°F), Humidity 10%-80% non-condensing

Ethernet

	Twisted Pair	**Coax**
Network Interface	IEEE802.3 10BaseT	IEEE802.3 10Base2
Network Connection	Direct cable with RJ-45 or External module with RJ-45 female connector	External module with coax BNC connector
Cable Type	Unshielded Twisted Pair	RG58 A/U or C/U, 50 Ohm
Cable Category	Category 3 or better	n.a.
Operating Distance	100m (328 feet)	185m (607’) standard 300m (984’) extended
Diagnostic LEDs	Activity and Link on external module only	Activity on external module only
Data Transfer	Programmed I/O	Programmed I/O
Data Bus Width	16 bits	16 bits

Modem

Data Access Arrangement	Internal	
Network Interface	2 wire switched	
Network Connection	Direct via supplied RJ-12 cable	
Compatibility & Data Speeds	Bell 103	300 bps
	Bell 212A	1200 bps
	V.21	300 bps
	V.22	600/1200 bps
	V.22bis	1200/2400 bps
	V.23	75Tx/1200Rx bps or 1200Tx/75Rx bps
	V.32	4800/9600 bps
	V.32bis	4800/7200/9600/14400 bps
	*V.FC/V.34	14400/16800/19200/21600/26400/28800 bps 31200 bps 33600 bps
Compatibility & Fax Speeds	V.21	300 bps
	V.26bis	1200/2400 bps
	V.27ter	2400/4800 bps
	V.29	4800/7200/9600 bps
	V.17	7200/9600/12000/14400 bps
	V.33	12000/14400 bps
Data Rate Adaptation	300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 38400. 57600, 115200, 230400	
Format Sensing	10 & 11 data bits	
Parity Sensing	Odd, Even, Mark, Space, None	
Transmit level	-10 dBm	
Receive level	-9 dBm to -43 dBm	
Call progress tones detected	Answer, Dial, Busy and Ring Back	
Diagnostics	Local analog loopback with self test Local digital loopback with self test Remote digital loopback with self test Line signal strength and Line quality monitoring	